



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,299	01/28/2004	Iliia Zverev	1890-0048	9520

7590 01/25/2006

Maginot, Moore & Beck  
Bank One Tower  
111 Monument Circle, Suite 3000  
Indianapolis, IN 46204

EXAMINER
----------


HAN, YOUNGHUIE JESSICA

ART UNIT	PAPER NUMBER
----------	--------------

2838

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/766,299	<b>Applicant(s)</b> ZVEREV ET AL. 	
	<b>Examiner</b> Y. J. Han	<b>Art Unit</b> 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-36 is/are allowed.
- 6) ☒ Claim(s) 37-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/22/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 37-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Hasegawa (5,856,741).

Hasegawa discloses a power supply that has a voltage detecting section for detecting a decrease in the converted voltage and outputs a voltage-decrease detection signal. The Hasegawa reference discloses a method comprising the following method steps: a) providing an output voltage signal that corresponds to an output voltage of the switching converter (the comparator 6-1 outputs a voltage-decrease detection signal, as illustrated in FIG. 2e, when the converted voltage V2 is larger than the converted voltage V1); b) monitoring for at least one critical state of the switching converter based on the output voltage signal (the converted voltage output from the DC-to-DC up-converter 2 sharply drops, as shown in FIGS. 2b and 3a); c) interrupting a generation of drive pulses if a critical state is detected (the retriggerable oneshot circuit 4-5 in the voltage doubler circuit 4 is triggered in response to the voltage-decrease detection signal and generates an output signal); and d) at least partially discharging at least one energy storage device in a drive circuit of the switching converter upon interrupting the generation of drive pulses (the PFET 4-3 is turned on and the first NFET 4-4 is turned off, and charging voltages from the first and second capacitors 4-1 and 4-2 are added in series to each

Art Unit: 2838

other and are output after a lapse of a predetermined duration subsequent to the start of the second period); wherein step d) further comprises: e) detecting a discharge current; and f) discharging the at least one energy storage until the discharge current falls below a predetermined threshold (the predetermined voltage at which the voltage-decrease detection signal commences to be generated is set lower than the internal control voltage of the DC-to-DC up-converter 2); wherein step b) further comprises detecting a first critical state if the output voltage signal is less than a first threshold value (under light-load condition where voltage fluctuates in range L1); wherein step b) further comprises detecting a second critical state (when voltage drops sharply as shown in FIGS. 2b and 3a where voltage fluctuates in L2) if the output voltage signal falls below a second threshold, the second threshold less than the first threshold; further comprising: detecting a critical state if a supply potential falls below a predetermined threshold (when V2 is greater than V1).

The recitation in the preamble, i.e., “a switch connected to a rectifier” has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where a claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. In re Kropa v. Robie, 88 USPQ 478 (CCPA 1951).

***Allowable Subject Matter***

3. Claims 21-36 are allowed.
4. The following is an examiner's statement of reasons for allowance:

Claim 21 recites, inter alia, a controller arrangement having at least one control amplifier and at least one energy storage element coupled to the at least one control amplifier, the

Art Unit: 2838

controller arrangement operable to receive the output voltage signal and generate a control signal based at least in part on the output voltage signal, a protection circuit operable to detect at least one critical state of the switching converter, the protection circuit further operable to generate a protection signal dependent on the detection of at least one critical state, the protection circuit further comprising a discharge circuit coupled to the at least one storage element, a signal generating circuit operably coupled to receive the control signal and the protection signal, the signal generating circuit operable to generate a drive signal based at least in part on the control signal, the signal generating circuit operable to provide the drive signal as an output dependent on the protection signal.

Claim 36 recites, *inter alia*, a controller arrangement having at least one control amplifier and at least one energy storage element coupled to the at least one control amplifier, the controller arrangement operable to receive the output voltage signal and generate a control signal based at least in part on the output voltage signal, a protection circuit operable to detect at least one critical state of the switching converter, the protection circuit further operable to generate a protection signal dependent on the detection of at least one critical state, the protection circuit further comprising a discharge circuit coupled to the at least one storage element, a signal generating circuit operably coupled to receive the control signal and the protection signal, the signal generating circuit operable to generate the drive signal based at least in part on the control signal, the signal generating circuit operable to provide the drive signal as an output dependent on the protection signal.

The art of record does not disclose the above limitations, nor would it be obvious to modify the art of record so as to include either of the above limitations.

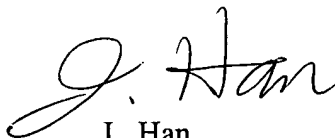
Art Unit: 2838

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. J. Han whose telephone number is 571-272-2078. The examiner can normally be reached on Mon-Fri 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "J. Han", is positioned above the printed name and title.

J. Han  
Primary Examiner  
Art Unit 2838